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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,184	10/30/2003	Asaf Adi	IL920030025US1	8188
7590 Stephen C. Kaufman Intellectual Property Law Dpt. IBM Corporation P. O. Box 218 Yorktown Heights, NY 10598				
EXAMINER				
CHUMPTIAZ, BOB R				
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3629				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/697,184

Applicant(s)

ADI ET AL.

Examiner

BOB CHUMPITAZ

Art Unit

3629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-10 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/5508)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

The following is a Non-Final office action in response to communication received October 2, 2008. Claims 11-26 have been canceled. Claim 1 has been amended. Therefore, claims 1-10 are pending and addressed below.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1, recites a computer implemented method comprising: "applying rules" and "responsive" however as presented in the claim it is not directed to any form of structure and could equate to software components. Based on the recent precedent for the Federal Circuit from *In re Bilski*, the machine-or-transformation test is a two-branched inquiry; an applicant may show that a process claim satisfies § 101 either by showing that his claim is tied to a particular machine, or by showing that his claim transforms an article. See *Benson*, 409 U.S. at 70. Certain considerations are applicable to analysis under either branch. First, as illustrated by *Benson* and discussed below, the use of a specific machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility. See *Benson*, 409 U.S. at 71-72. Second, the involvement of the machine or transformation in the claimed process must not merely be

insignificant extra-solution activity. See *Flook*, 437 U.S. at 590. The claimed process contains physical steps, it does not involve transforming an article into a different state or thing. Therefore, Applicants' claim is not drawn to patent-eligible subject matter under § 101, because the applicable test to determine whether a claim is drawn to a patent-eligible process under § 101 is the machine-or-transformation test set forth by the Supreme Court and clarified herein, and Applicants' claim here plainly fails that test. See *e.g. In re Bilski and Warsaw*, (Fed. Cir. 2008).

Claims 2-10 depend from claim 1 and do not cure the deficiencies set forth above. Therefore, claims 2-10 are also rejected for being directed to non-statutory subject matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over J. Bailey, A. Poulouvassilis and P. Wood: "An Event-Condition-Action Language for XML" (Pub. 2002, hereinafter Bailey) in view of H. Herbst, G.

Knolmayer, T. Myrach and M. Schlesinger: "The specification of business rules: A comparison of selected methodologies" (Pub. 1994, hereinafter Herbst).

As per claim 1, Bailey discloses a computer-implemented method for automatically updating business components information, and propagating changes in business components to other business components according to a dependency model, said method comprising:

applying rules that describe how an event affects a business component and that describe when a change in a business component triggers an event (Pg. 486-487, Event-condition-action (ECA) rules automatically perform actions in response to events; ECA have been used in many settings, including active databases, workflow management, network management, personalization, and specifying and implementing business processes; multiple ECA rules are defined within a system and the execution of one rule may cause an event which triggers another rule or set of rules; see also, Pg. 494, techniques for analyzing the triggering and activation dependencies between rules)

Bailey teaches an execution model of ECA rules that make them a promising means for rapid prototyping of a wide range of e-services (Pg. 494), and once the triggering and activation relationships have been derived, one can construct a triggering graph which are useful in analyzing rule behavior (Pg. 490), but does not expressly disclose a method to create a business dependency model

modeling business components and dependencies between them including compound dependencies.

However, Herbst teaches business rules expressed in different variants of Entity-Relationship-Models (ERM) and where an enhancement of ERM with respect to the concepts of events and rules is the Entity-Relationship-Rules Model (ERM). In addition, Herbst further teaches situation-action rules to control the states of entities, relationships and their attributes (Pgs. 9-11, Sections 2.1, 3.2.1-3.2.2). Furthermore, Herbst teaches different methodologies for modeling business rules (Pgs.1-2, Sections 1, 2.1). Lastly, Herbst teaches a conceptual processing model which supports triggering events, (synchronized) operations and resulting events (Pg. 6, Section 3.1.2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the execution model of Bailey to include the entity relationship model and conceptual processing model as taught by Herbst in order to provide the operation for modeling business dependencies which may help improve that understanding and interplay of dependencies between each rule-component and concentrate on the modeling of dynamics and the interdependencies between each rule-component.

Bailey teaches ECA rules used in workflow management (Pg.1), and the activation relationships between ECA rules (Pg. 7, Section 3.2), and techniques for analyzing the triggering and activation dependencies between rules (Pg. 9, Section 4), but does not expressly disclose said dependency model defining event types, business component types, and dependency types associated with a business domain, said dependency model further defining how information is propagated from one business component to another.

However, Herbst teaches business rules which may be relevant in an order processing system and the variety of rules and their possible interdependencies (Pg. 4, Section 2.3). In addition, Herbst teaches specifying business rules in an event schema and where the behavior of objects is described by state transition diagrams, event schemas, object flow diagrams, and process dependency diagrams (Pg. 13, Section 3.3 and Figs. 9, 10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the execution model of Bailey to include business rules that can be expressed through their components, i.e. events, conditions and actions as taught by Herbst in order to provide the operation for modeling business dependencies using specification languages or graphical presentations and to develop a model that represents business rules as a precondition to their systematical representation in a rule base system.

Bailey further discloses responsive to one or more events, automatically updating business components information (Pg. 486, ECA rules automatically perform actions in response to events; see also, Pg. 494, ECA rules have a simple syntax and are automatically invoked in response to events and where the specification of such events is indeed a part of the document object model; and a method for computing rule triggering and activation relationships which essentially focus on determining the effects of updates upon queries), and

Bailey teaches wherein for a push type environment, ECA rules are a mechanism for automatically broadcasting information to subscribers as the contents of relevant documents change (Pg. 486), but does not expressly disclose propagating changes in business components to other business components according to the dependency model.

However, Herbst teaches the concept of entity life histories (ELH) which is an approach that concentrates on the expression of state changes of entities; these are e.g. a component of the entity-event modeling, which is a technique used to integrate the results of data and data flow modeling. The basic idea of ELH is simply to describe all events related to state changes in the life-cycle of an entity, i.e. from its creation over possible changes to its deletion (Pg. 12). In addition Herbst, teaches a statecharts method used to describe the behavior and reaction

of a system in terms of system states and corresponding state changing events (Pg. 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the execution model of Bailey to include a method that deals with state changes for entity event modeling and the reactions for the corresponding state changing events as has taught by Herbst in order to provide the operation for modeling business dependencies along with situation action rules used for controlling the states of the entities, relationships and their attributes.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey in view of Herbst and in further view of Parad (US 5,369,570).

As per claim 2, Bailey and Herbst disclose claim 1 as rejected above, wherein Bailey teaches ECA rules used for many settings, including active databases, workflow management, network management specifying and implementing business processes, and they are also used in conventional warehouses for incremental maintenance of materialized views, for validating and cleansing of the input data streams and for maintaining audit trails of the data (Pg. 486), and where XPath and XQuery languages are used for specifying events, conditions and actions within ECA rules (Pg. 487), and the technique for analyzing the triggering and activation dependencies (Pg. 494), but

both do not expressly disclose receiving as input said event types, business component types, and dependency types associated with a business domain.

However, Parad teaches a system and method for prospective scheduling, monitoring, and control of a plurality of independent and interdependent resources to accomplish predetermined goals in a timely and efficient manner (col.4, lines 18-39). In addition, Parad teaches resource data table that contains all the information about each resource that is retrieved, managed, and updated in its entirety, and each instance of a resource table contains resource characteristics, rules that govern its utilization, timing transforms, dependent resource requirements (relationships), and events of supply and demand (col. 16, line 2 - col. 17, line 64). Furthermore, Parad teaches a transaction table entry that references its dependent resource relationship and points to the event change table where its parent's event changes are defined (col. 21, lines 10-14).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bailey and Herbst to include entries for event change tables as taught by Parad in order to provide a method for inputting relational event data that will help improve resource management through effective decision support and that continuously adjusts in response to changing requirements, conditions, and constraints.

As per claim 3, Bailey further discloses further including receiving as input rules that describe how an event affects a business component (Pg. 486, col. 2 – Pg. 487, col.1 Event-condition-action (ECA) rules automatically perform actions in response to events; ECA rules are used in active databases, workflow management, network management, personalization, and specifying and implementing business processes; the execution of one rule may cause an event which triggers another rule or set of rules; see also, Pg. 494, col. 1-2 techniques for analyzing the triggering and activation dependencies; the specification of such events is part of the document object model; execution model of ECA rules. The Examiner considers the process where ECA rules automatically perform actions in response to events to encompass one or more business changes, e.g. a single change in production can affect hundreds of business component operations).

As per claim 4, Bailey further discloses further including receiving as input rules that describe when a change in a business component triggers an event (pg. 486, col.2 ECA rules used for many settings, including active databases, workflow management, network management specifying and implementing business processes, and the execution of one rule may cause an event which triggers another rule or set of rules; see also, pg 487, col. 1, the use of XPath and XQuery languages to specify events, conditions and actions within ECA rules; see also, pg. 490, col. 2, the triggering and activation relationships between pairs of rules; see also, pg. 494, col. 1 technique for analyzing the triggering and activation dependencies).

As per claim 5, Bailey further discloses further including defining said event types, business component types, and dependency types associated with a business domain (pg. 486, col.2 ECA rules used for many settings, including active databases, workflow management, network management specifying and implementing business processes; see also, pg 487, col. 1 the use of XPath and XQuery languages to specify events, conditions and actions within ECA rules; and defining each of the components of the ECA rule language; see also, Pg. 490, col. 2, defining the triggering and activation relationships between pairs of rules).

As per claim 6, Bailey further discloses further including defining said that describe how an event affects a business component (Pg. 486, col. 2 – Pg. 487, col.1 Event-condition-action (ECA) rules automatically perform actions in response to events; ECA rules are used in active databases, workflow management, network management, personalization, and specifying and implementing business processes; the execution of one rule may cause an event which triggers another rule or set of rules; see also, Pg. 494, col. 1-2 techniques for analyzing the triggering and activation dependencies; the specification of such events is part of the document object model; execution model of ECA rules. The Examiner considers the process where ECA rules automatically perform actions in response to events to encompass one or more business changes, e.g. a single change in production can affect hundreds of business component operations).

As per claim 7, Bailey further discloses further including defining said rules that describe when a change in a business component triggers an event (Pg. 486, col. 2 – Pg. 487, col.1 Event-condition-action (ECA) rules automatically perform actions in response to events; the execution of one rule may cause an event which triggers another rule or set of rules; see also, Pg. 490, col. 2, defining the triggering and activation relationships between pairs of rules; see also, Pg. 494, col. 1-2 techniques for analyzing the triggering and activation dependencies; execution model of ECA rules).

As per claim 8, Bailey further discloses wherein the business dependency model includes predefined dependency type semantics (Pg. 494, col. 2 method for computing rule triggering and activation relationships focus on determining the effects of update queries....query optimization strategies are possible...given a set of pre-defined queries, allow one to retain in memory only documents which are relevant to computing these queries...as updates are made....analyzing the effects of the updates on the collection of pre-defined queries).

As per claims 9 and 10, Bailey further discloses claim 8, which depends from claim 1, which was rejected over Bailey in view of Herbst, and wherein:

Bailey teaches the procedure for determining non-independence of an insertion from a condition, "c", involves constructing from "c" a set C of conditions, each of which is an

XPath expression without any qualifiers i.e. a distinguished path. The objective is that condition c can change from False to True as a result of an insertion only if at least one of the conditions in C can change from False to True as a result of the insertion (Pg. 492, Section 3.2), but does not expressly disclose:

wherein said dependency type semantics include a mandatory logical operator that logically couples one or more source components of the dependency to one or more targets of the dependency and sets the targets to a worst state of the sources.

wherein said dependency type semantics include an "N out of M" logical operator that logically couples M source components of the dependency to one or more targets of the dependency and sets the targets to ok if at least N of the sources are ok and otherwise sets the targets to "fail".

However, Herbst teaches a conceptual modeling approach which supports triggering events, (synchronized) operations and resulting events, and where an operation consists of one or more tasks that are based on management rules and are executed sequentially, and where every operation may lead to different events according to issuing rules which may be e.g. be 'operation has been successful' or 'operation has failed': the abbreviation NR signifies that no response follows (Pg. 6, Section 3.1.2). In addition, Herbst teaches data modeling formalism, PN are augmented with token values to specify constraints

concerning object state sequences generated by events and object type dynamics in databases (Pg.6, Section 3.1.4, see also Fig. 4 and associated text).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bailey to include logical dependent rule transactions as taught by Herbst in order to formulate one or more issues arising in a business plan using logical reasoning techniques to identify options relating to the business plan.

Please Note:

Applicant(s) are reminded that optional or conditional elements do not narrow the claims because they can always be omitted. See *e.g.* MPEP §2106 II C: "Language that suggest or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. "As a matter of linguistic precision, optional elements do not narrow the claim because they can always be omitted." *In re Johnston*, 435 F.3d 1381, 77 USPQ2d 1788, 1790 (Fed. Cir. 2006)(where the Federal Circuit affirmed the Board's claim construction of "further including that said wall may be smooth, corrugated, or profiled with increased dimensional proportions as pipe size is increased" since "this additional content did not narrow the scope of the claim because these limitations are stated in the permissive form 'may.'").

Examiner has pointed out particular references contained in the prior arts of record in the body of this action for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the response, to consider fully the entire references as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior arts or disclosed by the examiner.

Response to Arguments

Applicant's argument filed October 2, 2008 has been fully considered and is persuasive. In the remarks, Applicant argues that:

(1) Since, claims 1-10 were rejected under 35 U.S.C. 103(a) over Bailey or Zhang et al. ("Babel: An XML-based Application Integration Framework") in view of Srivastava and further in view of Levinson. Applicant respectfully traverses this rejection, because under the provisions of 35 U.S.C. 103 (c), Srivastava is ineffective as prior art against the present patent application for purposes of 35 U.S.C. 103.

In response to argument (1), Applicant's argument is persuasive. See new grounds of rejections.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BOB CHUMPITAZ whose telephone number is (571)270-5494. The examiner can normally be reached on M-TR: 7:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN WEISS can be reached on (571) 272-6812. The fax phone number for the organization where this application or proceeding is assigned is 571-270-6494.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

B. C.
Examiner, Art Unit 3629

/John G. Weiss/
Supervisory Patent Examiner, Art Unit 3629

